Alfa Laval OS Twin screw

Twin screw pumps

Introduction

The Alfa Laval Twin Screw Pump combines process duties typically handled by positive displacement with Cleaning-in-Place (CIP) duties typically handled by centrifugal pumps. This provides a robust and reliable platform that offers greater process flexibility.

Designed for process flexibility, the Alfa Laval Twin Screw Pump is built on a robust, reliable platform that meets stringent hygienic standards. It is capable of handling both product transfer and CIP. Its low pulsation characteristics and excellent solids-handling capability reduce the risk of product damage, thereby improving product quality.

The pump is designed according to the most stringent hygienic design standards and with verified, effective CIP.

Applications

Designed for handling sensitive, abrasive and high and low viscosity fluids, the Alfa Laval Twin Screw Pump is ideal for use in hygienic applications across the dairy, food, beverage, and home and personal care industries. Quiet and virtually pulse-free, the pump provides smooth and gentle operation, making it an excellent choice for handling sensitive products.

Two-in-one operation provides easy handling of process media of varying viscosities as well as CIP fluids. This simplifies piping and pump control, cutting costs and minimizing contamination risks.

Superior suction performance with excellent lift capability and low NPSHr provides installation flexibility and increases product recovery.

The Alfa Laval Twin Screw Pump is available in sixteen models based on four frame sizes. Each frame is available with an assortment of different screw profiles for varying pressure, flow and solids-handling capabilities.

Benefits

- Greater process flexibility.
- Ease of service, increased process uptime.
- Robust reliable design, reducing cost of ownership and increasing process uptime.

- Improved product quality.
- Exceptional hygiene and cleanability.

Standard design

All media contacting steel components, like pump casing, front cover and feed screws are in W. 1.4404 (AISI 316L). Furthermore, the pump casing is diffusion hardened. A stainless steel gearbox, end cover and foot ensure increased life and assist in washdown.

The gearbox is designed with the timing gears located between the bearing sets, rather than external to them. This allows the bearing location to be optimized in order to provide maximum support to the shaft assembly, thereby providing a robust rigid design. The internal gearcase design optimizes oil circulation to both sets of bearings and the timing gears with an oil sump design. This improves the lubrication effect on both bearings and timing gears, minimizing the energy produced due to friction and thereby reducing heat generation within the pump gearbox.

The front-loading, self-setting cartridge design makes it easy to replace the shaft seal while the pump is in place. Single, single flush and double mechanical cartridge seals are available. All options are fully front-loading and interchangeable.

The Alfa Laval Twin Screw Pump can be supplied either as a bare shaft pump or mounted on a base plate complete with coupling, guard, shroud and a direct coupled motor or a gear motor for easy, plug-and-play installation.

Working principle

The Alfa Laval Twin Screw Pump is a positive displacement pump. As the pump rotates, the intermeshing of the two contra-rotating screws, along with the pump casing, form volumetric chambers. These chambers fill with the pumped fluid and move the fluid axially from the suction side of the pump to the higher pressure discharge side.

Certificates

Authorized to carry the 3A symbol

TECHNICAL DATA

Standard specification	
Pump casing:	W. 1.4404 (316L), diffusion hardened
Screws, front cover, seal housing:	W. 1.4404 (316L)
Inside surface finish:	Mech Ra ≤ 0.8 (≤ 32)
Gear box:	Stainless steel
Base plate:	Stainless steel
Coupling guard:	Stainless steel
Product wetted elastomers:	EPDM
Other elastomers:	FPM
Shaft seal:	Single flush
Rotary seal face:	Silicon Carbide
Stationary seal face:	Silicon Carbide

Shaft seals	
Single, Single flush and double mechanical cartridge seals available. All options are fully front loading and interchangeable.	
Max. flush pressure, single flush:	0.5 bar (7.25 psi)
Max. flush pressure, double mechanical:	16 bar (max. 6 bar over product pressure) (232 psi (max. 87 psi over product pressure))
Water consumption, single flush and double mechanical:	0.5 l/min. (0.13 gallon/min.)
Flush connections, OS10-30:	G 1/4" or NPT 1/4"
Flush connections, OS40-46:	G 1/2" or NPT 1/2"

Pressure	
Max. inlet pressure:	16 bar (232 psi)
Max. discharge pressure:	16 bar (232 psi)

Temperature	
Max. process temperature:	100ºC (212ºF)
Max. CIP/SIP temperature:	150ºC (302ºF)

Motor
Direct coupled motor, 4, 6 or 8 poles, or gear motor, 4 poles, to either IEC metric standard, 50/60 Hz, suitable for frequency conversion, IP55, insulation class F or Nema standard, premium efficiency, suitable for frequency conversion.

Warranty
Extended 3-years warranty on Alfa Laval Twin Screw pumps. The warranty covers all non wear parts on the condition that genuine Alfa Laval Spare Parts are used.

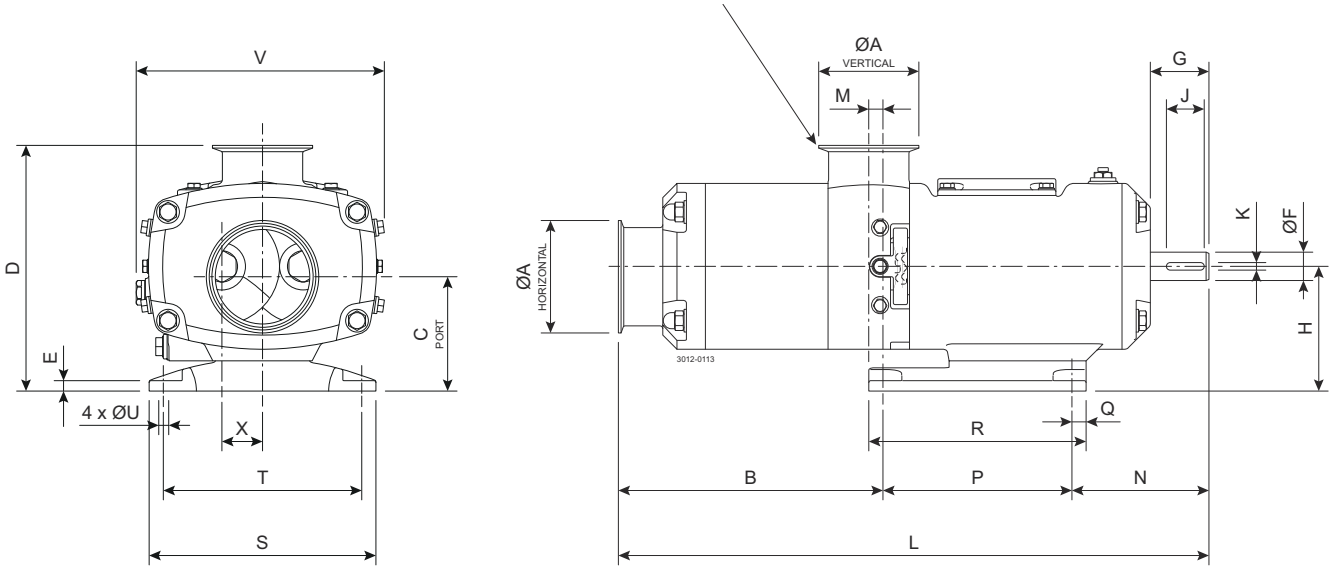
Operating data

Model	Max. Flow		Max. Differential Pressure		Max. speed		Max. Particle Size	
					Process	CIP		
	m3/h	gpm	bar	psi	rpm	rpm	mm	inch
OS12	6.1	27	16	232	2800	3300	6	0.24
OS14	10.4	46	12	174	2800	3300	11	0.43
OS16	16.0	70	8	116	2800	3300	17	0.67
OS22	18.2	80	16	232	2500	3300	12	0.47
OS24	24.3	107	12	174	2500	3300	16	0.63
OS26	36.5	161	8	116	2500	3300	24	0.94
OS27	45.7	201	6	87	2500	3300	15	0.59

Model	Max. Flow		Max. Differential Pressure		Max. speed		Max. Particle Size	
					Process	CIP		
	m3/h	gpm	bar	psi	rpm	rpm	mm	inch
OS28	38.7	170	5.5	80	2000	2000	32	1.26
OS32	34.8	153	16	232	2200	3000	16	0.63
OS34	46.6	205	12	174	2200	3000	21	0.83
OS36	69.9	308	8	116	2200	3000	32	1.26
OS37	88.0	387	6	87	2200	3000	20	0.79
OS38	84.8	373	5.5	80	2000	2000	42	1.65
OS42	66.8	294	16	232	1800	2800	21	0.83
OS44	89.5	394	12	174	1800	2800	29	1.14
OS46	134.3	591	8	116	1800	2800	43	1.69

Dimension mm (inch)

PUMP SHOWN WITH TRI-CLAMP, SUCTION AND DISCHARGE CONNECTIONS



Model	ØA Vertical	B	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V[1]	X
										mm (inch)										
OS12	25 (1)																			
OS14	40 (1½)	170 (6.69)	180 (7.09)	7 (0.28)	18 (0.71)	50 (1.97)	90 (3.54)	40 (1.57)	6 (0.24)	405 (15.94)	10 (0.39)	110 (4.33	125 (4,92)	10 (0.39)	145 (5.70)	155 (6.10)	135 (5.31)	9 (0.35)	188,5 (7.42)	28 (1.10)
OS16	50 (2)																			
OS22	40 (1½)																			
OS24	50 (2)	222,5 (8.76)	220 (8.66)	9 (0.35)	20 (0.79)	54,5 (21.4 6)	112 (4.41)	40 (1.57)	6 (0.24)	505 (19.88)	12,5 (0.49)	117,5 (4.63)	165 (6.50)	12,5 (0.49)	190 (7.48)	200 (7.87)	175 (6.89)	11 (0.43)	216 (8.50)	33 (1.30)
OS26	65 (2½)																			
OS27	65 (2½)																			
OS28	65 (2½)	252,5 (9.9)	”	”	”	”	”	”	”	535 (21.1)	”	”	”	”	”	”	”	”	”	”

[1] Dimension 'V'is with flush plugs installed - NPT adaptors will increase this dimension by ~10mm

Model	ØA Vertical	B	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V[1]	X
										mm (inch)										
OS32	65 (2½)																			
OS34	65 (2½)	280	260	11	30	62	132	40	8	625	15	145	200	15	230	240	210	13	262,5	43
OS36	80 (3)	(11.02)	(10.24)	(0.43)	(1.18)	(2.44)	(5.20)	(1.57)	(0.31)	(24.61)	(0.59)	(5.71)	(7.87)	(0.59)	(9.06)	(9.45)	(8.27)	(0.51)	(10.33)	(1.69)
OS37	80 (3)																			
OS38	80 (3)	320 (12.6)	”	”	”	”	”	”	”	665 (26.2)	”	”	”	”	”	”	”	”	”	”
OS42	80 (3)																			
OS44	80 (3)	360 (14.17)	350 (13.78	15 (0.59)	45 (1.77)	87 (3.43)	180 (5.51)	70 (2.76)	14 (0.55)	790 (31.10)	20 (0.79)	180 (7.09)	250 (9.84)	20 (0.79)	290 (11.42)	320 (12.60)	280 (11.02)	17,5 (0.68)	346 (13.62)	58 (2.28)
OS46	100 (4)																			

[1] Dimension 'V'is with flush plugs installed - NPT adaptors will increase this dimension by ~10mm

Model	ØA Horizontal	C			
		DIN11851 DIN 11864-1-A-A DIN 11864-2-A-A	SMS	Tri-Clamp DIN 11864-1-A-C DIN 11864-2-A-C	BS 4825-4 (IDF) BS 4825-5 (RJT)
	mm (inch)	mm	mm	mm (inch)	mm
OS12	40 (1.5)	72	70.75	70.4 (2.77)	70.45
OS14	50 (2)	78	77.25	76.75 (3.02)	76.8
OS16	65 (2.5)	86	83.15	83.1 (3.27)	83.15
OS22	50 (2)	90	89.3	88.75 (3.49)	88.8
OS24	65 (2.5)	98	95.15	95.10 (3.74)	95.15
OS26 OS27 OS28	80 (3)	105.5	101.45	101.45 (4.00)	101.5
OS32 OS34	80 (3)	111.5	107.45	107.45 (4.23)	107.5
OS36 OS37 OS38	100 (4)	121	119.8	119.7 (4.71)	119.8
OS42 OS44	100 (4)	148.5	147.3	147.2 (5.80)	147.3
OS46	150 (6)	173.5	-	171.93 (6.77)	-

Options

- Single mechanical shaft seal
- Double mechanical shaft seal
- Silicon Carbide/Carbon seal faces
- Product wetted elastomers in FPM or FFPM
- Diffusion hardened screws
- Heating jacket
- Rectangular inlet
- Hydrostatic testing with certificate
- Reversed flow
- Bottom inlet or outlet
- Stainless steel shroud covering coupling and motor

- Baseplate fitted with adjustable stainless steel ball feet
- ATEX / Ex-proof approval

Pump sizing

In order to correctly size a twin screw pump some essential information is required. Provision of this information listed below enables our Technical Support personnel to obtain the optimum pump selection. Specific CIP data are important as well.

Product/Fluid Data:

- Fluid to be pumped.
- Viscosity.
- Pumping temperature, minimum, normal and maximum.
- Cleaning in Place temperature(s), minimum, normal and maximum.

Performance Data:

- Flow rate, minimum, normal and maximum.
- Discharge head/pressure (closest to pump outlet).
- Suction condition.

Note!
For further details, see also 100000817.
This product has EHEDG certificate.